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## THE ARMENIANS AND THE GREEK *GEOPONICA* (\*)

The *Geoponica*, compiled by an unknown author in the early 10th century during the reign of Constantine Porphyrogenitus (<sup>1</sup>), is a work on agriculture in its many aspects. There are, in all, twenty chapters treating such subjects as astronomy, the cultivation of grapes, the making of wine, horticulture, the care of animals, the cultivation of wheat and olives, insects injurious to plants, and comments on cattle and horses, bees, dogs, hares, camels, deer, pigs and so forth, the full gamut of subjects that the landowner should understand to make his farming enterprise prosperous. It is a large book, and the Teubner edition of 1895 (Heinrich Beckh, ed.) has 529 pages of text (<sup>2</sup>), an abundance that makes clear the injunction of Constantine Porphyrogenitus to create a useful thesaurus.

It is not an original book, and virtually every segment of it is drawn from an earlier author. The text is careful always to list what earlier author is the authority for the passage recorded in the *Geoponica*, and in 1883 Wilhelm Gemoll sorted through the whole of the *Geoponica* and was able to locate many of the extant passages (<sup>3</sup>) in the original

(\*) This paper, in an earlier form, was read at the International Conference on Armenian Medieval Literature, Yerevan, 1986, and in a slightly different form appears in the *Proceedings* of that conference.

(1) This work is not by Cassianus Bassus, as had been supposed during the 19th century, but certainly it was prepared under the encouragement of Constantine Porphyrogenitus (905-959) who was himself a productive writer, turning out works of some significance, and commissioning other which show, as well, the stamp of his own hand. A full list and a discussion is found in TOYNBEE 1973.575-605. A Russian translation with commentary was published by Lipšic, 1960.

(2) Beckh's edition also has an index of a hundred pages, mostly nouns, which gives insight into the wide variety of topics covered in this work. A later comment on Beckh can be found in Charitonides 1928, but the *Geoponica* is not a text that attracts considerable attention, and comment on it has been small. Here note Gow 1944 and Rose 1933.

(3) Gemoll's work could not assign location of all the texts listed in the *Geoponica* since the works of many of the authors are no longer extant and these passages in the *Geoponica* are our only source for their œuvre.

authors. Such men as Aratus of Soleus, Aristotle, Didymus of Alexandria, Varro, Pamphilus of Alexandria and others provide the basic texts that were woven together by the unknown composer.

The textual transmission of the *Geoponica* and its various translations is complex, but has been, by and large, worked out through the diligence of Eugene Fehrle<sup>(4)</sup>. As the following table shows, the Greek *Geoponica* resulted from a long tradition of agricultural handbooks. It began in the fourth century with the preparation of the now lost *Compendium of Agricultural Activities* by Vindanius Anatolius<sup>(5)</sup> of Berytus, a sensible book, we are told, containing much useful information. At the same time another author, Didymus of Alexandria<sup>(6)</sup> prepared a book, also now lost, known as the *Georgica* in which he gave much agricultural information; his book, however, is much given to mysticism and magic. It was from these two books by Didymus and Anatolius that Cassianus Bassus derived his collection *Concerning Agriculture* in the 6th century; that too is lost, but it served as the basis for our surviving *Geoponica*<sup>(7)</sup>.

There are said to be versions of this book in Syriac, Arabic and Armenian. They are, actually, similar only in part to the established Greek *Geoponica* and it has been determined that they are derived not from the *Geoponica* as we have received it, but from an earlier form, most likely the *Compendium* of Anatolius, a book which served in part as a basis for the *Georgica* of Cassianus Bassus. This *Compendium* was rendered into Syriac during the 6th century by the well known translator Sergius of Resaina<sup>(8)</sup>. From this Syriac version, the title to

(4) Here see Fehrle 1913 (*Habilitationsschrift*), 1920a, 1920b. The last work, a small monograph, is by far the most helpful in establishing the lineage of the various editions of the *Geoponica*.

(5) Sections by Anatolius appear in the surviving *Geoponica*, and he wrote on such matters as horticulture and the preparation of wine, among other subjects.

(6) Didymus of Alexandria also wrote on medical subjects, with the same ear for the mystic and magical. His fragments appear in Aetius Medicus (6th century).

(7) Cassianus Bassus has two sections in the *Geoponica*: V.6 "Concerning the proper time for planting vineyards", and V.36, "Concerning the Star-struck Vineyards". For more on these *Eclogues* of Cassianus Bassus, see E. ODER 1893.36-40.

(8) This version, from the sole London manuscript of the 8th or 9th century (No. 14662) was published by Paul Lagarde in 1860. An extensive commentary is found in BAUMSTARK 1894.384-538.

which has been lost, an Arabic version was prepared in the 9th century by Qoṣṭā ibn Lūgā<sup>(9)</sup> and it was from this that the Armenian *Girk' Vastakoc'* was taken in the 13th century<sup>(10)</sup>. In addition, there exists an Arabic work on agriculture, the *Kitāb al fallāḥa* of Ibn al 'Awwām that is mentioned by Alishan<sup>(11)</sup> as a parallel to the *Girk' Vastakoc'*. It is now seen that this *Kitāb al fallāḥa* is an Arabic work of the 12th century merely influenced by the *Geoponica* (it often quotes that Greek text) but it is clearly not a translation of it. This succession is outlined in Table 1.

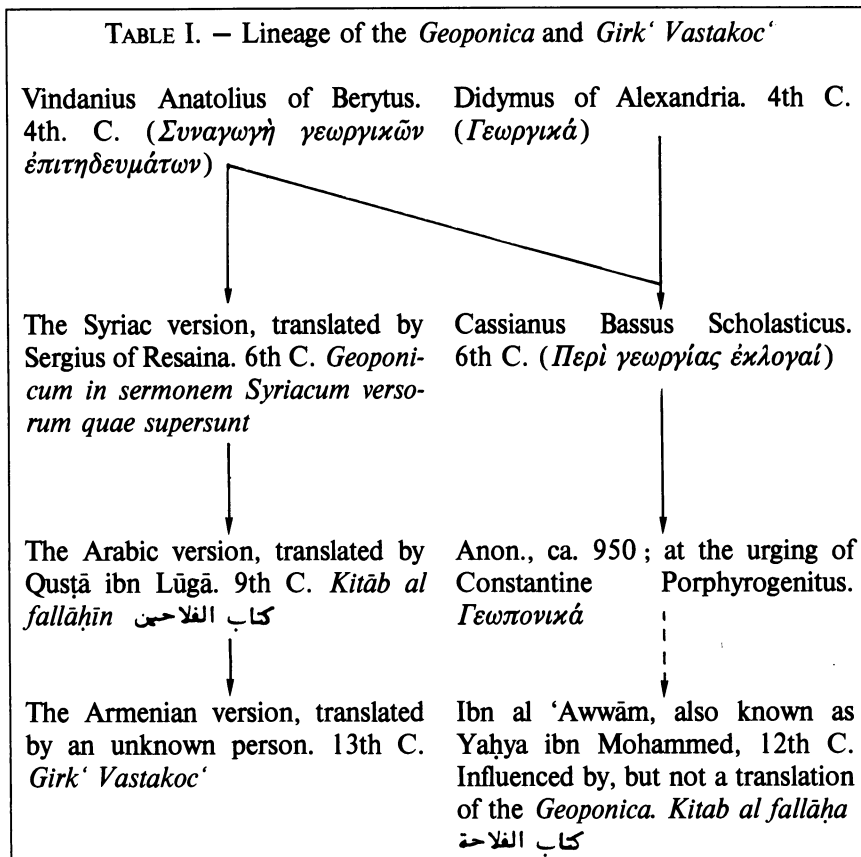
Thus there is no ancient translation of the Greek *Geoponica*. The Syriac and Armenian versions, as well as the Arabic version of Qoṣṭā ibn Lūgā are taken from a forerunner of the *Geoponica* compiled by Vindanius Anatolius, and the Arabic version of the 12th century, *Kitāb al fallāḥa* of Ibn 'al 'Awwām is only influenced by the Greek *Geoponica*. And more important to us is the fact that the immediate source for the Armenian *Girk' Vastakoc'* is an Arabic manuscript, taken from the Syriac, and in turn taken from the *Compendium* of Anatolius, and not from the Greek *Geoponica* in the form we have received it.

I think, moreover, that there is some chance that the Armenians had some knowledge of a Greek version of the *Geoponica*, either of the final version that was composed in the middle of the 9th century, or of the version prepared by Cassianus Bassus in the 6th century. The basis for this assumption is the non-typical vocabulary found in parts

(9) This Arabic version is known only from Leiden MS 1277. The spelling of the author's name, usually taken as *Qoṣṭā*, might not be correct, for though ق would yield *Qoṣṭā*, an alternative reading of ف (f) would yield a more Roman Festus.

(10) This text has been harmonized with the Greek *Geoponica* by Brockelmann (1896), and Brockelmann's ideas have been discussed in *Bazmavep* by Sarean 1900. A reading of Brockelmann's article will give a fairly decent idea of how the original text by Anatolius compares with the final version of the Greek *Geoponica*. There are numerous sections in the final Greek version that do not exist in the earliest version by Anatolius, as represented in the *Girk' Vastakoc'*, and there is great variation in the order in which the chapters are presented. There is a later commentary on the Armenian translation by Zanolli, 1929-30. Andrikan 1906 suggest that the translation was done by Mkhitar Heratsi.

(11) In Alishan's forward to the *Girk' Vastakoc'* (1877), he discusses the translation by J.-J. Clément-Mullet (1864-67) of the *Kitāb al fallāḥa*. There is also a bilingual Spanish-Arabic edition (1802) but the authorship is attributed to Yaḥya ibn Mohammed; it is clear, though, that both texts are the same and it appears that Ibn al 'Awwām and Yaḥya ibn Mohammed are the same.

TABLE I. — Lineage of the *Geoponica* and *Girk' Vastakoc'*

of the *Bark' Galianosī*. This Greek-Armenian lexicon, largely composed in the 6th century <sup>(12)</sup> and which lists for the most part pharmaceutical terms found in Galen's *Simples*, also contains numerous terms for animals and birds, vocabulary that has nothing to do with Galen's *Simples*. It is clearly derived from another Greek source, and I

(12) This dating is only a thoughtful guess, and the principal evidence that suggests it is the intense interest in Greek texts during the Hellenizing period. It is equally possible, though there is less support, that the *Bark' Galianosī* was prepared in, say, the 8th or 9th century.

propose, tentatively, that this source might be the Greek *Geoponica* of the 9th century, or one of its earlier versions. But from whatever source, either the *Geoponica* or one of its predecessors, these animal and bird name entries are of a date that must be quite later than that of the original compilation of the *Bark' Galianosi*. The earliest level of this Greek-Armenian dictionary from the 6th century is composed of some 400 plant names and these names have come down to us in a very poor orthographic state. But the bird and animal names are in a considerably better orthographic state, and the Greek word is readily understood in its Armenian script. It is clear, then, that the animal and bird words are later additions to the lexicon, less camouflaged by a careless copyist than the original part of the *Bark' Galianosi*. Because of the nature of this dictionary, and also because of the nature of those who compile dictionaries, it would be expected that there was a systematic approach to these additions, and that they were not just words selected at random, from the air <sup>(13)</sup>. One looks for Byzantine Greek texts that might have been used and one rather quickly settles on the *Geoponica* or one of its predecessors as a likely source. For in the *Geoponica* are numerous bird names, and numerous animal names. We may assume that the predecessors had similar lists since such animal and bird names are very much part of a work on agriculture. Following I give those words from the Galen dictionary which are found in the *Geoponica*. This list of animal and bird names does not by any means find a neat fit with the *Geoponica*, yet it does show a surprisingly high percentage of matches. This number of matches is sufficient enough for us to take seriously the assumption that the *Geoponica* could have influenced the later content of the *Bark' Galianosi*; the match, though, is not sufficient for us to say with confidence that it is a sure fit. At this point we can only suggest the relationship.

We should also bear in mind that even the pharmaceutical terms from the oldest layer of this dictionary, certainly from Galen's *Simples*,

(13) There are also about 30 Arabic words. An effort to relate them to the best known of the Arabic text of *Simples*, Avicenna's *Qānūn* (Greppin 1986a) was not entirely successful. The portion of Arabic words in the *Bark' Galianosi* (30), compared with the great number in the *Qānūn* (750) made the effort invalid. A further effort to relate it to the Arabic vocabulary found in Mkhitar Heratsi's work was also inconclusive.

are not a perfect match. Only about 300 of the terms in the *Bark' Galianosi* correspond to vocabulary in the *Simples*, and there we find 450 pharmaceutical terms. Thus, even for the plant terminology we find only two-thirds match, about the same matching we will find for the animal and bird names.

Following (Table 2) is a list of all the bird names in the Galen dictionary and the notation of where, if anywhere, they appear in the *Geoponica*.

TABLE 2. — Bird names

Entry in <i>Bark' Galianosi</i>		Location in <i>Geoponica</i>
1.	ἀετός	eagle 2.40.3
2.	άλιαέτος	sea-eagle ---
3.	άλκυνών	kingfisher ---
4.	γέρανος	crane 1.3.12
5.	γλαύξ	owl 1.2.6
6.	γύψ	vulture 13.16.3
7.	ἔποψ	hoopoe 15.1.19
8.	έρωδιός	heron 15.1.19
9.	ἰκτῖνος	kite 13.8.8
10.	καταρράκτης	cormorant ---
11.	κόραξ	raven 1.2.6
12.	κορώνη	crow 1.2.6
13.	κύκνος	swan ---
14.	λάρος	gull ---
15.	νησσάριον	duck 14.23.4 (= νήσσα)
16.	νυκτικόραξ	goatsucker ---
17.	ὄρτυξ	quail 14.24
18.	πάων	peacock 14.7.28 (= ταώς)
19α.	πελακῖνος or	pelican 2.43
19β.	πελεκανός	coot ---
20.	πέρδιξ	quail 14.19.21
21.	περιστερά	pigeon 2.19.3
22.	σπίξ	owl ---
23.	στρουθοκάμηλος	ostrich ---
24.	τρωγλοδύτης	wren 7.30.1
25.	φάσσα	ringdove 15.11.9
26.	χηνάριον	wild goose 1.3.9 (= χήν)
27.	ψᾶρ	starling ---
28.	ὠτίς	bustard ---

The animal names in the *Bark' Galianosi* are more faithfully represented in the *Geoponica* than the bird names. The dictionary lists thirty, from locust to weasel to giraffe, and 22 of them are found in the *Geoponica*. Of the eight that do not appear, six (panther, antelope, dormouse, a type of insect, a stag, porcupine) are found among the very last words, a curious placement. Table 3 is the list of these animal names, and their location in the *Geoponica*.

TABLE 3. — Animal names

Entry in <i>Bark' Galianosi</i>		Location in <i>Geoponica</i>
1.	ἀκρίς	locust 1.8.8
2.	ἀλώπηξ	fox 14.9.6
3.	ἄρκτος	bear 2.3.7
4.	ἀσπάλαξ	mole 13.7
5.	βλήχιον	sheep 18.1p (= πρόβατον)
6.	βούβαλος	buffalo ---
7.	βροῦχας	locust 13.a.2
8.	γαλέη	weasel 20.7.1
9.	δορκάς	gazelle ---
10.	ἔλαφος	deer 13.8.2
11.	καμηλοπάρδαλις	giraffe 16.22.8
12.	κάμπη	caterpillar 5.30.2
13.	κανθαρίς	blister beetle 13.10.10
14.	καστόριον	beaver testicle 20.9
15.	κογχύλιον	mollusc 7.12.16
16.	κοχλίας	snail 8.29
17.	κροκόδειλος	crocodile 1.14.5
18.	κωνώπιον	gnat 2.5.12
19.	λαγῶς	rabbit 13.14.9
20.	μυγαλή	shrew 2.47.12
21.	μυῶξος	dormouse ---
22.	νυκτερίς	bat 12.8.8
23.	παντήρον	stag ---
24.	πύγαργος	antelope ---
25.	σαύρα	lizard 15.2.18
26.	σκνίψ	insect ---
27.	τραγέλαφος	antelope ---
28.	τράγος	goat 3.8
29.	ῥαινα	hyena 1.14.5
30.	ῥστριξ	porcupine ---



Other observations can be made about the pharmaceutical vocabulary found in the *Bar̄k' Galianosi* that, though it might also be in Galen, it is not in Galen's *Simples*. Numerous, though certainly not all of the pharmaceutical terms in the *Bar̄k' Galianosi* that are not also located in the *Simples*, and which are in a more near perfect orthographic state, are also found in the *Geoponica*. This classification is not as precise as the animal and bird classification since there is a secondary discrimination about the quality of the orthographic state, which if it is satisfactory, is a key to the time it came into the *Bar̄k' Galianosi*. This secondary discrimination about the orthographic state is most subjective. Because of this the information we can derive is a bit cloudier than what we get from straight-forward animal or bird names.

For words beginning with the letter *alpha* there are eight pharmaceutical terms that are not found in Galen's *Simples*. Of these eight, six are in the *Geoponica*:

Entry in <i>Bar̄k' Galianosi</i>	Location in <i>Geoponica</i>	
ἀγγούριον <sup>(14)</sup>	cucumber	---
ἀλθαία	marshmallow	7.23
ἄλφιτον	barley groats	5.41.2
ἀνθραξ	carbuncle	8.37.3
ἀντίδοτος	antidote	4.8.2
ἀρσενικόν	arsenic	13.12.5
ἀστερίσκος	star-wort	---
ἄσφαλτον	asphalt	5.36.2

Because these terms are more subjectively assembled and classified, I am not listing the full quotient of them. But further spot checks show a conformity. Of the two words in *kappa* that are pharmaceutical but not part of Galen's *Simples*, both are found in the *Geoponica*; for *omicron* it is three out of four; for those with initial *sigma*, six out of

(14) This term for cucumber is a striking word, for it is the term used in Modern Greek, in the form *ἀγγούρι*, and its appearance in the *Bar̄k' Galianosi* is curious. As far as I can determine, its earliest use was in, remarkably, the *De Administrando Imperio* of Constantine Porphyrogenitus (JENKINS 1967.136, Greppin 1986b), but not in the *Geoponica*. The context is: *Τετραγγούριν δὲ καλεῖται διὰ τὸ εἶναι αὐτὸ μικρὸν δίκην ἀγγουρίου* "And it is called *tetrangouris* because it is long-shaped like a cucumber".

nine. All in all, there is a strong overlap in the *Geoponica* of pharmaceutical names that are not part of Galen's *Simples* as we have received it. These terms as well lend evidence to the proposal that much of the extraneous vocabulary is parallel to the Greek version of the *Geoponica*, for the over-lap is remarkable.

As always in matters such as these, a wholly clear picture seems to evade us ; we can propose trends, even strong trends, but we cannot say that the evidence is incontrovertible. But it does seem well within the realms of reason that the Armenians of the 10th century were familiar with a form of the Greek *Geoponica*, and from it they derived vocabulary which was to appear later in the *Bark' Galianosi*.

John A. C. GREPPIN.

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